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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,434	12/22/2001	Hans Carlsson	4015-1741	6324

27045 7590 01/26/2005

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EXAMINER

RAMOS FELICIANO, ELISEO

ART UNIT PAPER NUMBER

2687

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/028,434

Applicant(s)

CARLSSON, HANS

Examiner

Eliseo Ramos-Feliciano

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/22/2001</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The incorporation of essential material in the specification by reference to a foreign application or patent, or to a publication is improper. Applicant is required to amend the disclosure to include the material incorporated by reference. The amendment must be accompanied by an affidavit or declaration executed by the applicant, or a practitioner representing the applicant, stating that the amendatory material consists of the same material incorporated by reference in the referencing application. In re Hawkins, 486 F.2d 569, 179 USPQ 157 (CCPA 1973); In re Hawkins, 486 F.2d 579, 179 USPQ 163 (CCPA 1973); In re Hawkins, 486 F.2d 577, 179 USPQ 167 (CCPA 1973).

The specification is objected to because it improperly incorporates by reference essential subject matter (page 7, lines 1-7). The definition or “meaning” of “timing advance” is considered essential to the subject invention. See MPEP 608.01(p)(I)(A).

Information Disclosure Statement

2. The references listed in the Information Disclosure Statement filed on December 22, 2001 have been considered by the examiner (see attached PTO-1449 form).

Requirement for Information

3. Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application.

The information is required to enter in the record the art suggested by the applicant as relevant to this examination in page 9, line 14 (3GPP TS 04.60). Should be noted that the IDS of record does not contain such document.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. **Claims 10 and 18-20** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. **Claim 10** ends with “and” and has no ending period. The claim is incomplete.

7. **Claim 18** only contains language that suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation. See MPEP 2106(II)(C), example (B) "adapted to". In addition, *claim 18* appears to be an apparatus claims but does not contain any structural elements.

Claims 19-20, dependent on *claim 18* are rejected for the same reasons explained above.

For examination on the merits, *claims 10, 18-20* will be treated as best understood.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. **Claims 1-4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Vaara et al. (US Patent Number 6,321,083) in view of Manabe (US Patent Number 5,423,067).

Regarding **claim 1**, Vaara et al. discloses a method of determining the position (location) of a wireless mobile terminal (mobile station MS – Figure 1) including (see abstract):

determining a first timing advance (column 2, lines 43-63) between the mobile terminal and a first base station (serving base station) based on packet-switched (GSM – column 3, lines 62-67) communications therebetween (see also column 5, lines 45-53);

receiving indications of the signal strengths of signals (column 2, line 64 to column 3, line 11) from at least third and fourth base stations received at said mobile terminal (see “two or more adjacent cells” or “triplet” – column 5, lines 60-67);

determining the location of said mobile terminal based on said first timing advance, and said signal strengths (column 3, lines 12-20).

However, Vaara et al. fails to specifically disclose the step of instructing said mobile terminal to artificially change from said first base station to a second base station, and thereafter determining a second timing advance between said mobile terminal and said second base station; and specify that determining the location of said mobile terminal is further based on said second timing advance.

In the same field of endeavor, Manabe discloses a method of determining the position (e.g. Figure 6) of a wireless mobile terminal (mobile station MS 1 – Figure 1) wherein two or more timing advance values (time delay or timing advance are interchangeable in Manabe – column 5, lines 8-9) are determined, each timing advance value corresponding to a mobile terminal and a respective first and/or second base station (e.g. f2A to f2D – column 4, lines 40-

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49). The first base station (A – e.g. Figure 6) is “serving” the wireless mobile terminal which is “instructed” (inherent) to “artificially change” (the change can be characterized as “artificial” since actual change is not performed in Manabe) from the first base station (e.g. A) to a second base station (e.g. B, C, D). The location of the mobile terminal is determined based on the combination of the first timing advance, the second timing advance, and signal strength (signal level – column 4, lines 26-39) measurements (see column 5, lines 26-30).

One advantage of Manabe, i.e. using a second timing advance value to determine the location of the mobile terminal, is that it is enabled a very accurate location determination since inaccuracies are reduced by increasing the number of reference values, such as the second timing advance (compare with column 3, lines 13-16 of Vaara et al.).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to add to Vaara et al.’s invention the step of instructing said mobile terminal to artificially change from said first base station to a second base station, and thereafter determining a second timing advance between said mobile terminal and said second base station; and determining the location of said mobile terminal is further based on said second timing advance, because this would reduce inaccuracies in the method and enable much more accurate location determinations.

Regarding **claim 2**, Vaara et al. and Manabe disclose everything claimed as applied above (see *claim 1*). In addition, Vaara et al. discloses wherein receiving indications of the signal strengths of signals from at least third and fourth base stations received at said mobile terminal comprises receiving indications of the signal strengths of signals from a plurality of base stations listed on a neighbor list (adjacent cell list – see e.g. column 9, lines 17 and 64).

Regarding **claim 3**, Vaara et al. and Manabe disclose everything claimed as applied above (see *claim 1*). In addition, Vaara et al.'s signal strengths of signals can be characterized as "RSSI measurements" because Vaara et al.'s measurements are indicative of the signal strength as claimed (see column 2, line 64 to column 3, line 11). Therefore Vaara et al. further discloses wherein receiving indications of the signal strengths of signals from at least third and fourth base stations received at said mobile terminal received at said mobile terminal comprises receiving RSSI measurements of the signal strengths of signals from said at least third and fourth base stations received at said mobile terminal. Manabe's signal strength (signal level – column 4, lines 26-39) can also be characterized as "RSSI measurements" as claimed.

Regarding **claim 4**, Vaara et al. and Manabe disclose everything claimed as applied above (see *claim 1*). In addition, Vaara et al.'s signal strengths of signals can be characterized as "relative signal strengths" because Vaara et al.'s measurements are a relative indication of the signal strength as claimed (see column 2, line 64 to column 3, line 11). Therefore Vaara et al. further discloses wherein determining the location of said mobile terminal based on said first timing advance, said second timing advance, and said signal strengths comprises determining the location of said mobile terminal based on said first timing advance, said second timing advance, and the relative signal strengths associated with said third and fourth base stations. Manabe's signal strength (signal level – column 4, lines 26-39) can also be characterized as "relative signal strengths" as claimed.

10. **Claims 5-6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Vaara et al. (US Patent Number 6,321,083) in view of Manabe (US Patent Number 5,423,067) as applied to *claim 1* above, and further in view of MPEP 2144.03.

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Regarding **claim 5**, Vaara et al. and Manabe disclose everything claimed as applied above (see *claim 1*). In addition, Vaara et al. discloses GSM. In spite of that, Vaara et al. and Manabe fail to specify GPRS as claimed. But GPRS is a very well known service of GSM technology, and the examiner takes Official notice of this notion.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to determine the first timing advance between the mobile terminal and the first base station based on packet-switched communications therebetween by determining the first timing advance between the mobile terminal and the first base station based on GPRS packet-switched communications therebetween, because GPRS is a typical service of GSM technology with the advantage of enabling, for example, wireless Internet communications.

Regarding **claim 6**, Vaara et al. and Manabe disclose everything claimed as applied above (see *claim 5*). In addition, Vaara et al. discloses GSM. In spite of that, Vaara et al. and Manabe fail to specify “packet cell change order”. However, packet cell change order is a very well known message of GSM/GPRS technology, and the examiner takes Official notice of this notion.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to instruct the mobile terminal to artificially change from the first base station to the second base station by instructing the mobile terminal to artificially change from the first base station to the second base station via a packet cell change order, in order to comply with the GSM/GPRS standard.

11. **Claims 7-14 and 18-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yost et al. (US Patent Number 6,097,959) in view of Teder et al. (US Patent Number 5,828,659).

Regarding **claim 7**, Yost et al. discloses a method of determining the position of a wireless mobile terminal (370 - Figure 3) including:

determining a first timing advance (TA value) between the mobile terminal and a first base station based on packet-switched communications (GSM – column 5, line 3) therebetween; determining a second timing advance between said mobile terminal and said second base station; determining a third timing advance between said mobile terminal and said third base station; and determining the location of said mobile terminal based on said first, second, and third timing advances (column 3, lines 1-26; column 4, line 27 to column 5, line 7; column 8, lines 9-26).

However, Yost et al. fails to specify sending a command to said mobile terminal instructing said mobile terminal to: synchronize to a second base station and transmit one or more access bursts thereto; and, thereafter, without waiting for an acknowledgement of said access bursts to said second base station, synchronize to a third base station and transmit one or more access bursts thereto. In other words, Yost et al. fails to specify the order the timing advance values are obtained, i.e., first a timing advance from the first base station, second a timing advance from the second base station, etc.

In the same field of endeavor, Teder et al. discloses a method of determining the position of a wireless mobile terminal where timing advances (traffic channel offset λ_1 , λ_2 , etc. – column 11, lines 25-26) are obtained from respective first, second, etc. base stations (BS1, BS2...) one at a time following an order (one at a time: a call link to first BS, then call link to another BS) as disclosed at column 7, line 46 to column 10, line 34; especially column 10, lines 1-24. Also column 14, lines 12-39. Three timing advances (λ) in the case of a new third base station; column 10, lines 8-24. The mobile station synchronizes with the target base station for such

purpose (column 12, lines 56-62). Inherently by a “command” as claimed. Therefore, Teder et al. discloses sending a command to said mobile terminal instructing said mobile terminal to: synchronize to a second base station and transmit one or more access bursts thereto; and, thereafter, without waiting for an acknowledgement of said access bursts to said second base station, synchronize to a third base station and transmit one or more access bursts thereto, as claimed.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide Yost et al. with the missing step explained above because it would increase the reliability of the location determination process and would reduce system signaling since the timing advance values are obtained one at a time following a predetermined order.

Regarding **claims 8-12**, Yost et al. and Teder et al. disclose everything claimed as applied above (see *claim 7*). In addition, the combination of Yost et al. and Teder et al. disclose

sending said command to said mobile terminal comprises sending a message containing an identifier (inherent because the intended base station as well as the mobile station must be identified from others) to be included in said access bursts;

wherein said message further includes an indication of the number of access bursts (e.g. twice or two – column 4, line 32 of Yost et al.) the mobile terminal should transmit to said second base station;

wherein said message further includes one or more frequencies (GSM requirement: column 2, lines 7-15 of Yost et al.) and an indication of the base station identifier (explained

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above) to be used for synchronization to said second base station (see also column 4, lines 27-39 of Yost et al.);

wherein said command further instructs said mobile terminal to automatically return to said first base station after transmitting said one or more access bursts to said third base station (column 10, lines 1-34 of Teder et al.);

said mobile terminal automatically suspending, in response to receiving said command, packet data operation until after said transmitting said one or more access bursts to said third base station (column 10, lines 1-34 of Teder et al.).

As to **claims 13-14**, they are corresponding claims to *claim 7*; therefore, same reasons explained above are applied. In addition, the claims specify wherein the timing advance values are obtained via obvious additional commands for instructing the mobile station to acquire the timing advance values from respective base stations. These would have been obvious to a person of ordinary skill in the art at the time the invention was made in view of the combination of Yost et al. and Teder et al. explained above because given one command, more commands are obvious for the purpose of getting more values so as to improve the accuracy of the location determination. In addition, the first base station is “serving” the wireless mobile terminal which is “instructed” (inherent) to “artificially change” (the change can be characterized as “artificial” since actual change is not performed) from the first base station to a second base station.

As to **claims 18-20**, they are considered, as best understood, corresponding claims to *claims 7-11*; therefore, same reasons explained above are applied.

12. **Claims 15-17** are rejected under 35 U.S.C. 103(a) as being unpatentable over Vaara et al. (US Patent Number 6,321,083) in view of Teder et al. (US Patent Number 5,828,659).

Regarding **claim 15**, Vaara et al. discloses a method of determining the position (location) of a wireless mobile terminal (mobile station MS – Figure 1) including (see abstract):

determining a first timing advance (column 2, lines 43-63) between the mobile terminal and a first base station (serving base station) based on packet-switched (GSM – column 3, lines 62-67) communications therebetween (see also column 5, lines 45-53); said first base station having a first sectorized cell (Figure 7, e.g. “eleven sub-areas” or sectors - column 6, lines 2-3) associated therewith;

determining the location of said mobile terminal based on said first timing advance and a sector configuration of said first sectorized cell (Figure 7; column 8, line 66-67; and column 3, lines 12-20).

However, Vaara et al. fails to specifically disclose the steps of sending a command to said mobile terminal instructing said mobile terminal to synchronize to a second base station and transmit one or more access bursts thereto, said second base station; determining a second timing advance between said mobile terminal and said second base station; and specify that determining the location of said mobile terminal is further based on said second timing advance.

In the same field of endeavor, Teder et al. discloses a method wherein two or more timing advances (traffic channel offset λ_1 , λ_2 , etc. – column 11, lines 25-26) are obtained from respective first, second, etc. base stations (BS1, BS2...) one at a time following an order (one at a time: a call link to first BS, then call link to another BS) as disclosed at column 7, line 46 to column 10, line 34; especially column 10, lines 1-24. Also column 14, lines 12-39. Three timing advances (λ) in the case of a new third base station; column 10, lines 8-24. The mobile station synchronizes with the target base station for such purpose (column 12, lines 56-62). Inherently

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by a “command” as claimed. One advantage of Teder et al., i.e. using a second timing advance value to determine the location of the mobile terminal, is that it is enabled a very accurate location determination since inaccuracies are reduced by increasing the number of reference values, such as the second timing advance (compare with column 3, lines 13-16 of Vaara et al.).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to add to Vaara et al.’s invention the above explained steps, because this would produce much more accurate location determination results.

Regarding **claim 16**, Vaara et al. and Teder et al. disclose everything claimed as applied above (see *claim 15*). In addition, since Vaara et al. teaches a method applied to a first sectorized cell (Figure 7, e.g. “eleven sub-areas” or sectors - column 6, lines 2-3), and Teder et al. teaches further cells, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to extend Vaara et al.’s sectorized cell teachings to further cells for the advantage of achieving more accurate location computation results.

Regarding **claim 17**, Vaara et al. and Teder et al. disclose everything claimed as applied above (see *claim 15*). In addition, Teder et al. teaches the mobile terminal to synchronize to the first base station, after the synchronization to the second base station, without waiting for an acknowledgement of the access bursts to the second base station (column 12, lines 56-62 of Teder et al.).

Conclusion

13. Any inquiry concerning this communication from the examiner should be directed to Eliseo Ramos-Feliciano whose telephone number is 703-305-0078. The examiner can normally be reached from 8:00 a.m. to 5:30 p.m. on 5-4/9 1st Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Lester G. Kincaid, can be reached on (703) 306-3016. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ERF/erf
January 21, 2005


ELISEO RAMOS-FELICIANO 1/21/05
PATENT EXAMINER